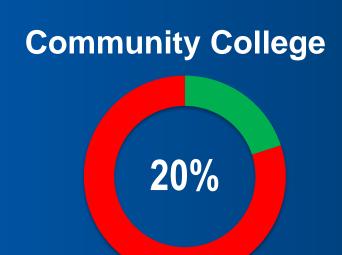
COMPLETE COLLEGE AMERICA

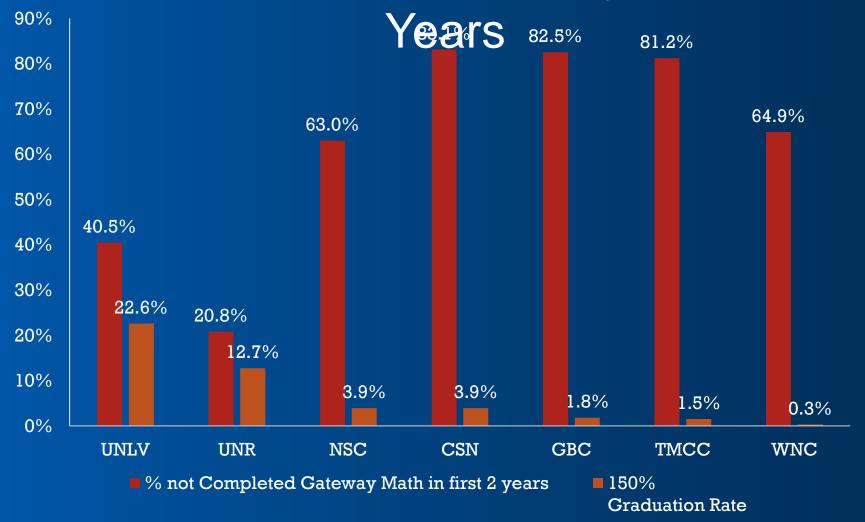
Bruce Vandal Senior Vice President

Few Students Complete Gateway Math in First Year





Nevada Graduation Rate Did not Complete Gateway Math in 2

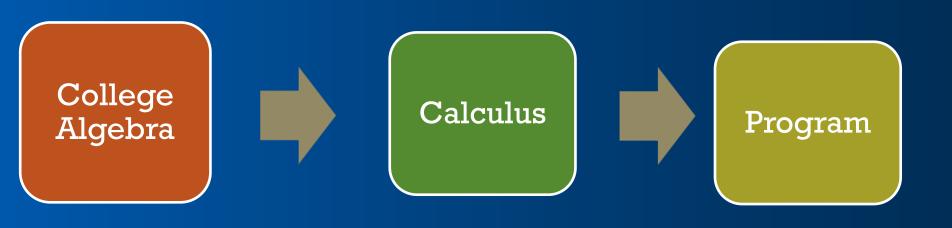


A COMMON VISION

college algebra courses serve two distinct student populations: the overwhelming majority for whom it is a terminal course ..., and the relatively small minority for whom it is a gateway to further math. Neither group is well-served by the traditional ... college algebra course.



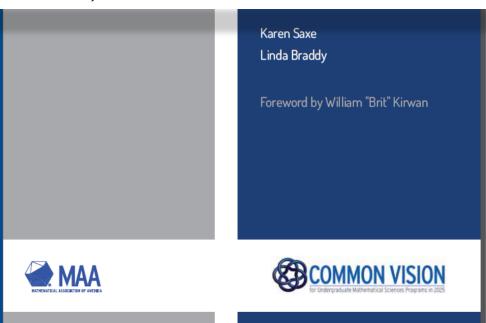
College Algebra's Purpose Is Preparation for Programs Requiring Calculus



A COMMON VISION

for Undergraduate

The mathematical sciences community must begin to think in terms of a broader range of entry-level courses and pathways into and through curricula for all students,





Math Is Aligned to Majors

Meta-Major

Humanities Arts

Social Sciences

Health Sciences

Business

Gateway Math

Quantitative Reasoning

Statistics/Modeling

Technical Certificate Programs

Technical Math

Engineering Hard Sciences

College Algebra/Pre-Calc/Calculus

Program

Classics
Performing Arts
Cultural Studies

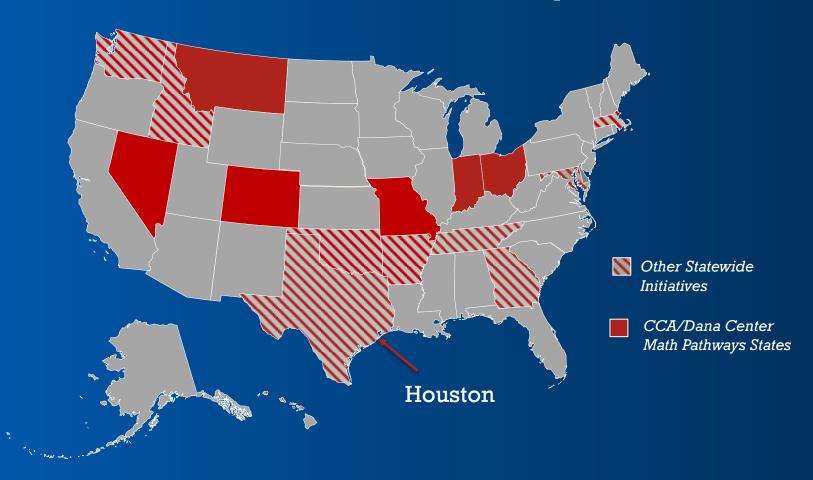
Psychology
Political Science
Communications

Welding Carpentry

Civil Engineering
Chemical Engineering
Chemistry

Math Pathways States

State Activity





Report and Recommendations of the

Task Force on Gateway Mathematics Success



MONTANA UNIVERSITY SYSTEM
OFFICE OF THE COMMISSIONER OF HIGHER EDUCATION

2500 Broadway - PO Box 203201 - Helena, Montana 59620-3201 (406) 444-6570 - FAX (406) 444-1469

Report and Recommendations of the

Montana Math Pathways Task Force

October 2015 Report



Colorado Math Pathways Task Force: Report and Recommendations

"Strengthening student success in the study of mathematics; increasing timely completion of the

Report of the Missouri Mathematics Pathways Task Force

ilding Math Pathways into Programs of Study

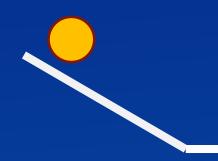


Rethinking Postsecondary Mathematics

Math Aligned to Major

- Applicable to Program of Study Requirements
- Transferable into Programs of Study at Receiving Institutions
- Designed to be delivered with a <u>Corequisite</u> for Underprepared Students
- A Key Component of Pre-Major Advising

STUDENT MOMENTUM





In the first year of enrollment students who...

- Earn 30 Credits in First Year
- Complete Math and English Gateway Courses
- Enter a Program of Study
- Complete 9 Program Credits

...Are far more likely to graduate.

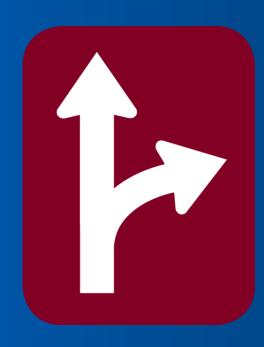
THE MOMENTUM YEAR

Focus Game Changer Implementation to Create Student Momentum:

- Ensure students make an informed choice of a program or a meta-major
- Default first year schedule adding up to 30 credits and 9 credits in a program path
- Default placement into gateway math and English
 - with corequisite support for those who need it.

Corequisite Academic Support

Remediation



Student attrition is at the heart of the matter...

Remediation: The effect of attrition.

Students assigned 3 or more semesters of math remediation.

LOST LOST LOST LOST **Enrolled** and Did not Did not enroll or

stopped enrolling

Passed gateway course.

Completed 1st semester

of remediation.

Completed 2nd semester

of remediation.

Completed 3rd semester

of remediation.

The remediation system is broken. More students quit than fail.

complete

completed

Remediation: The effect of attrition.

Students assigned 3 or more semesters of math remediation.

Completed 1st semester of remediation.

LOST

Completed 2nd semester of remediation.

LOST

Completed 3rd semester of remediation.

LOST

Passed gateway course.

LOST

Enrolled and completed

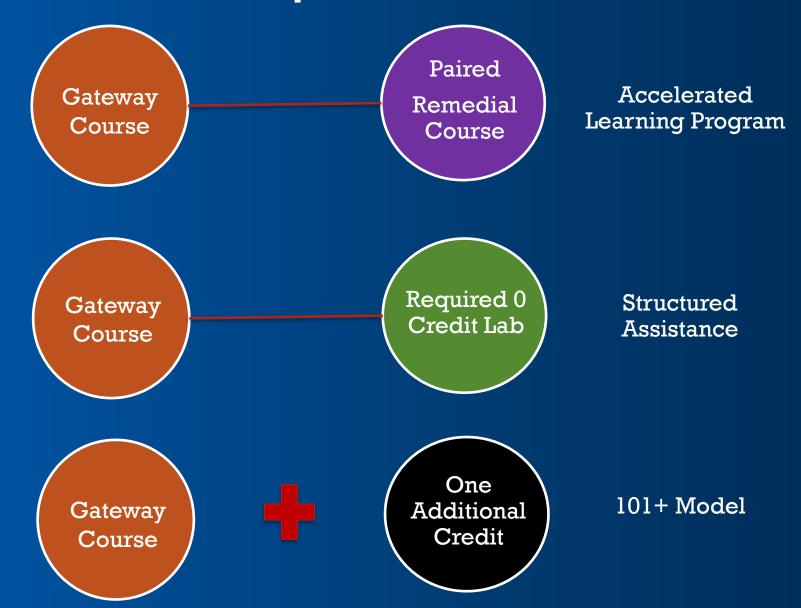
Did not complete

Did not enroll or stopped enrolling

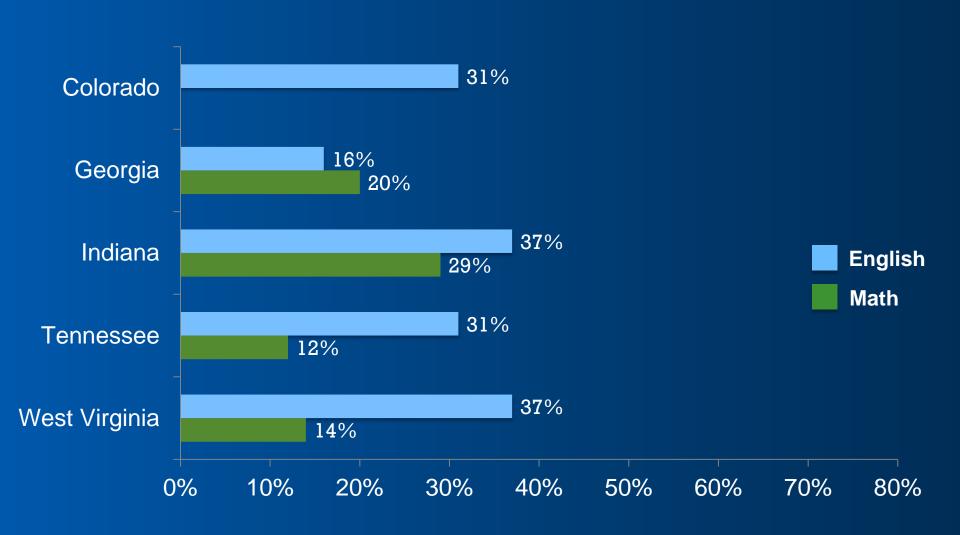
KNOW THIS

The remediation system is broken. More students quit than fail.

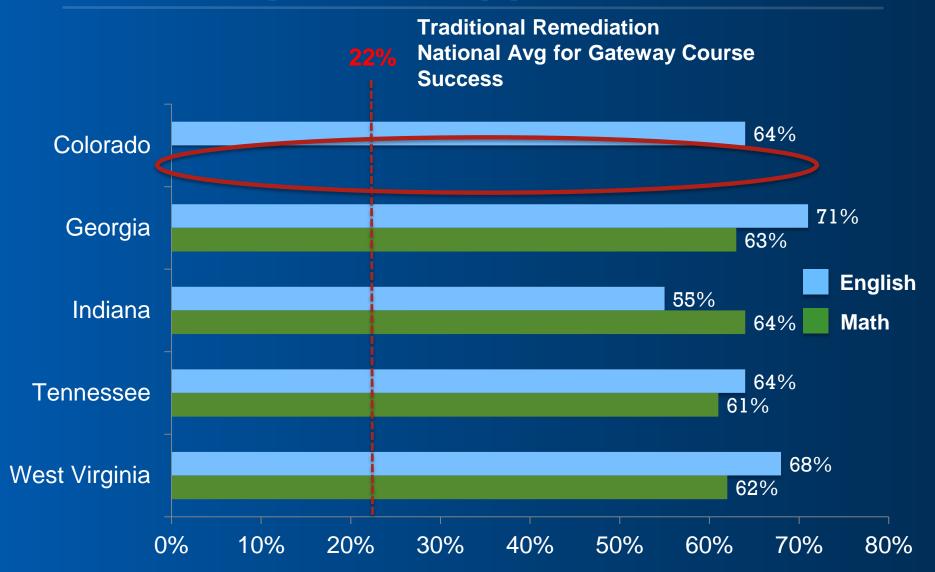
Corequisite Models



Two Year Gateway Completion: Traditional Remediation



One Semester Gateway Completion Corequisite Support At Scale





Getting on the Path: Meta-Majors

STEM

BUSINESS

HEALTH SCIENCES

HUMANITIES

SOCIAL SCIENCES

EDUCATION

ARTS

Interior Design Design Graphics Foreign Language Visual Graphics Humanities Theatre and Film Dance English Speech SizuM Brineering Music

> Design S noitesinnmmo2 Arts, Humanities,

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Engineering & Math

Technology,

Science,

Johe Short

SAN JACINTO
COLLEGE

CAREER **PATHWAYS** Public Safety and HumaniConsumet

Manufacturing & **Transportation** Construction Industry

Cosnetology Crimina Justice

Resaurant Managenerit

Personal Training

Massale Therapy

Air-Conditioning Technology Automotive Collision Repair Automotive Technology Avia Biomedical Equipment Repair Construction Technology

Non-Destructive Testing Instrumentation Environmental Health & Safety Electrical Technology Process Technology Construction Management Electronics Technology Maritime Transportation

Behavioral Science Anthropology

Health Sciences

Pharmacy Technician Nursing Eye Care Technology Health Information Mental Health

Surgical Technology Dental Assistant Medical Coding and Billing Medical Assisting Respiratory Care Long Term Care

Geography Government History Philosophy Psychology

Engineering Design Graphics Compute

Information Technology

Information Technology Security

Web Development

Computer Programming Engineering

Computer Simulation (gaming)

Environmental Science

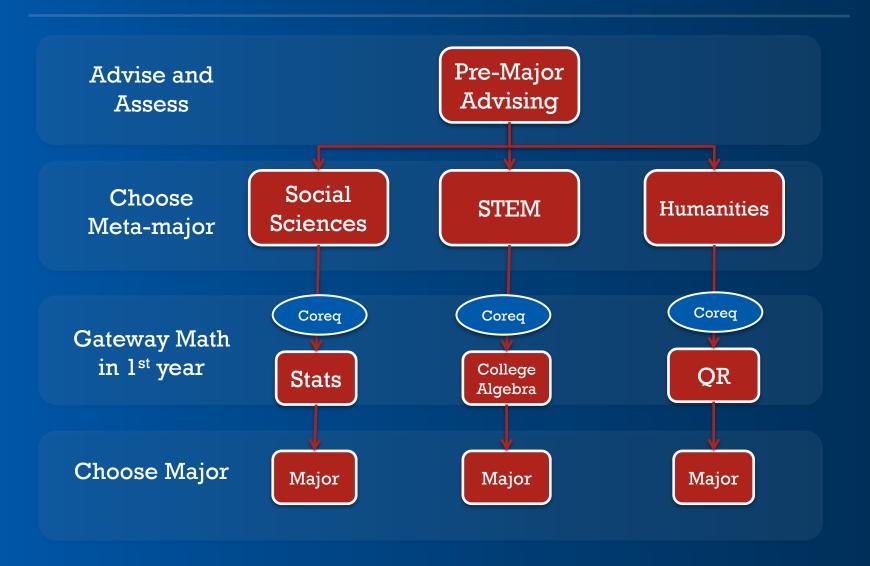
Computer Science

Mathematics

Chemistry Geology

Emergency Medical Technician Cancer Data Management Medical Radiology Physical Therapy Assistant

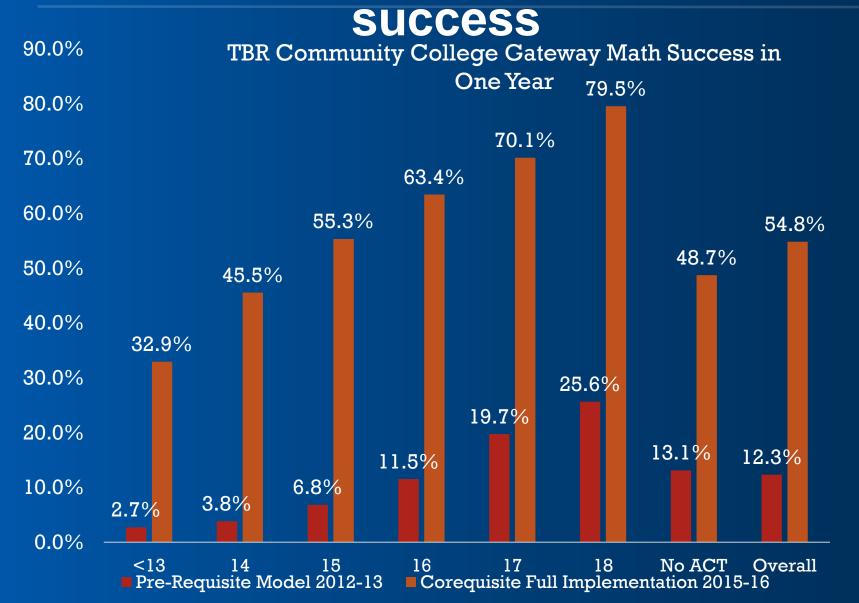
A Model Pathway



The Tennessee Story

- Virtually 100% Corequisite at all state universities and community colleges in Fall, 2015-16
- Transferable Math Pathways
 - Quantitative Reasoning
 - Statistics
 - College Algebra/Calculus
- Corequisites for QR and Stats
- Bridge from QR to College Algebra

Corequisites result in dramatic improvements in gateway course



Corequisite students earn more credits and persist at higher rates

For example at community colleges:

- Retention rates increased from:
 - > 47% to 63% at community colleges
 - > 73% to 79% at the state universities.
- Credit accumulation in the first year improved from 19 credits to 22.6 credits